N62604.AR.001313
NCBC GULFPORT
5090.3a

LETTER REPORT REGARDING ONSITE INTERIM CORRECTIVE MEASURES (ICM) REPORT AT SITE 8 NCBC GULFPORT MS

4/9/1998

ABB ENVIRONMENTAL

NCBC Gulfport Administrative Record
Document Index Number

39501-ASSOCIATED AO
18.02.00.0004

April 9, 1998

Southern Division
Naval Facilities Engineering Command
ATTN: Mr. Art Conrad
P.O. Box 190010
2155 Eagle Drive
North Charleston, South Carolina 29418

18.2.0.4

SUBJECT: Onsite Interim Corrective Measures (ICM) Report, Naval Construction Battalion Center (NCBC), Gulfport, Mississippi; Comprehensive Long-Term Environmental Action, Navy District I, Contract No. N62467-89-D-0317/128

Dear Mr. Conrad:

Under contract to the U.S. Department of the Navy, Southern Division, Naval Facilities Engineering Command, ABB Environmental Services, Inc. (ABB-ES), has prepared this onsite ICM Report to document completion of interim corrective measures at the NCBC in Gulfport, Mississippi. This ICM Report fulfills provision C.3 of the Mississippi Department of Environmental Quality (MSDEQ) Agreed Order Number 3466-97. The purpose of the ICMs is to reduce the further transport of dioxin-contaminated sediment associated with releases of herbicide orange (HO) from Site 8. This report summarizes activities associated with the implementation of the ICMs and includes (1) predesign sediment recovery trap (SRT) performance sampling, (2) drainageways survey, (3) SRT replacement and installation, and (4) SRT operation and maintenance (O&M) recommendations.

PREDESIGN SRT PERFORMANCE SAMPLING

Purpose. Prior to implementation of ICMs, sediment samples were collected from 11 existing SRT locations to determine if the structures were effectively recovering dioxin-contaminated sediment. This sampling event also served as a baseline of performance data that may be used to determine future effectiveness of the structures.

Sampling Activities. During the week of August 21, 1997, sediment samples were collected immediately upgradient and downgradient of SRTs 1, 3 through 7, 9, 10, 13, N1, and N2 (see Figure 1, all figures are located in Attachment A). All of the samples were analyzed for total organic carbon (TOC) and grain size distribution. Six locations were selected for dioxin analysis and include SRT 4, 5, 7, 13, N1, and N2. The samples were collected with a precleaned stainless-steel hand auger and transferred to laboratory-prepared sample jars. They were then shipped to their respective laboratories for analysis.

Sampling Conclusions. The analytical results, provided in Table 1 (all tables are located in Attachment B), for dioxin samples collected from six SRT locations (SRT 4, 5, 7, 13, N1, and N2) indicate decreasing levels for dioxin toxicity equivalent (TE) values when comparing upstream versus downstream

1400 Centerpoint Blvd
Suite 158
Knoxville, TN 37932-1968

Telephone (423) 531-1922
Fax (423) 531-8226

locations at each SRT. It is also noted that the TE values decrease as drainage moves away from the source area. Figure 2 provides a visual summary of this decrease in concentrations.

The additional SRT locations (SRT 1, 3, 6, 9, and 10) were sampled and analyzed for TOC and grain size only. Comparing dioxin results to TOC typically provides a consistent correlation; as TOC levels decrease, so do dioxin levels. This supports the observation that dioxin and TOC exhibit a direct relationship with one another. As levels of TOC increase, so do levels of dioxin. Because of the relationship between TOC and dioxin, reduction in dioxin levels is expected where there is a reduction in TOC levels. Of these five SRT locations, SRT 6 and 9 have shown a reduction in both TOC levels and particle size across the structure. At location SRT 10, TOC and grain size levels may not be good indicators because of the low flow conditions at that location. At locations SRTs 1 and 3, the TOC and grain size results do not indicate decreasing trends, although this may be more a function of preexisting conditions in the ditch than of the operating capabilities of these SRTs. The laboratory results for TOC and grain size analysis are provided in Tables 2 and 3, respectively.

DRAINAGEWAY SURVEY ACTIVITIES

Purpose. The drainageways carrying surface water from the Site 8 to several NCBC base outfalls were topographically surveyed to provide necessary elevation data to aid in design of the new SRT network. This information was used in connection with a stormwater-modeling program to predict ditch flow conditions during various rainfall events.

Survey Activities. During the week of June 23, 1997, the main drainage ditches carrying stormwater from Site 8 were surveyed. Horizontal and vertical data were collected at 25-foot intervals along the centerline of the ditches. Cross-sectional profiles were also collected at various locations. This information was then used with a stormwater-modeling program to determine flow velocities and water heights that would be encountered within the ditches at various rainfall intensities. The structural design and location of new SRTs were then designed to meet these variations in surface water flow.

SRT CONSTRUCTION

Purpose. The SRT network that was present prior to the implementation of the ICM was found to function as designed. However, these SRT structures have sustained several years of use and have become filled with silt and clay. This has caused the structures to act more as dams, reducing their effectiveness during storm events, which are the events of primary concern. An ICM was implemented to replace these older SRT structures with updated designs that reduce the movement of dioxin-contaminated sediment during storm events by dissipating the energy of the storm flow, allowing sediments to settle out.

Construction Activities. During the weeks of October 20 and 27, 1997, the construction of two new SRTs, replacement of two existing SRTs, and rehabilitation of one existing SRT were completed. Ditch modifications were also completed at SRT locations 5, 6, and 15 to provide additional volume storage capacity. A soil handling area (SHA) was also constructed to contain excavated material removed from the ditches during SRT construction. Figure 3 presents the locations of the SHA and SRT construction. Attachment C contains the design drawings for the SHA, SRT 5, SRT 6, SRT 13, SRT 14, and SRT 15.

The SHA was constructed on Site 8 to help contain contaminated soils removed from the SRT construction locations. It consisted of an excavation 60 feet by 60 feet that sloped to a center ditch with

a 1:15 slope. The center ditch then sloped to one end with a 1 percent decline. After the area had been excavated, a 40-millimeter thick, polyvinyl chloride (PVC) liner was installed within the excavation for containment purposes. Once the liner had been installed, the center ditch was completed with 2-inch-diameter gravel and an 8-inch-diameter perforated pipe. This pipe was installed so that water from saturated soil brought back to the SHA could be removed. After all excavated soil had been brought to the SHA, the entire structure was covered with a 20-millimeter-thick, PVC liner to isolate the staged soils from rainfall.

Existing SRTs 5 and 6 were removed and replaced with upgraded SRT structures. Preparation for the construction of the SRTs began with excavating a trench across the drainage ditch that extended into the banks on either side. The trench was excavated to a depth of approximately 1 foot below the drainage ditch bottom elevation. Once this was completed, geosynthetic nonwoven material was placed in the trench bottom and the remaining portion was filled with 2-inch-diameter gravel up to the ditch bottom elevation. The nonwoven material was placed into the excavation to protect the integrity of the base material. Gabion cages were then placed on top of the foundation and varied in height from 2 to 2.5 feet. The cages were constructed of galvanized wire coated with PVC. After placement of the cages, 3- to 6-inch-diameter gravel was hand placed into the cages. To complete the structure, 3- to 6-inch gravel was placed on either side at a 1:1 slope to help stabilize the structure and also aid in keeping it free of debris.

Two new SRT structures (SRT 14 and 15) were constructed within the 11th Street ditch along the north base boundary. These structures were built in the same manner as described above. The locations of these structures are shown on Figure 3.

The remaining construction activities consisted of retrofitting the existing SRT 13. The structure was originally built to a height that allowed water to rise up over the cage and also flow around the cage ends. To help alleviate this problem, a section of the top gabion was removed, which created a weir that lowered the water level behind the structure. However, during intense rain events, water still flowed around the edges of the structure. The ICM consisted of removing the entire upper layer of the structure and replacing it with gabion cages to lower the entire height. These cages were also tied into the ditch banks to stop flow around the ends. Rock was also placed on either side as discussed above.

Ditch modifications were also completed at SRT 5, 6, and 14. These modifications included the removal of sediment from the bottom of the ditches to provide proper slope. The ditches were also widened to provide more volume storage capacity. After excavation was completed, the soil surface was scarified and seeded with a mixture of Bermuda, Bahia, and Rye grass. A geosynthetic turf-reinforcement material was then placed on the seeded surface throughout the entire ditch where excavation had occurred. This material was installed to eliminate erosion along the modified ditch sections and to allow grass to grow. The installation process began by rolling the turf reinforcement from the downgradient end of the ditch towards the upgradient end. Every 30 feet an anchor trench was installed to hold the material in place during flow events. The matting was also anchored throughout with 12-inch galvanized turf staples. After installation of the matting, the area was seeded again and topsoil was applied. The topsoil was then fertilized and watered before being seeded again and then completed with a straw cover to hold the seed in place.

Two existing SRTs were removed from the network that included SRT 4 and SRT 7. These two structures were removed because they no longer function as designed, and both are located immediately upgradient from SRT 13 and considered redundant.

O&M OF SRTs

Purpose. O&M of the SRT network is necessary to prolong the life and effectiveness of each structure. As water flow carrying sediments continues to move through the structures, they will collect the sediment particles, as the previous SRTs have done. As these structures collect the sediment particles, they begin to clog up and eventually act as a dam. Once this has occurred, the SRT's effectiveness to recover sediments during high storm events decreases.

Recommended Actions. During rainfall events, debris accumulates in the drainage ditches. This debris consists of paper, plastic bottles, hay bales, grass cuttings, etc. The debris gets caught on the upgradient side of the SRTs and begins to clog water pathways. The actions described below are recommended for conducting O&M on the SRT network.

1. Personal protection equipment (PPE) should be worn by any individual attempting to conduct O&M. This equipment consists of rubber boots, nitrile gloves, and eye protection. If high water levels are encountered, hip waders should be worn.

2. The material that collects on the upgradient side of the structure should be removed and discarded properly. This material consists of both nonorganic and organic material, as defined below.

   - Nonorganic materials — paper goods, bottles, plastic containers — discarded in trash bins.

   - Organic materials — grass cuttings, sediments —handled as contaminated media and disposed of in the Site 8 sediment handling area. All activities associated with removal and handling of organic material shall be conducted in accordance with requirements of 29 Code of Federal Regulations 1910.120, including but not limited to personnel training and site control.

   Sediment buildup will usually occur at the bottom of the structure, underneath the waterline. The levels of sediment buildup should be visually monitored and removed as necessary. However, the structures should be cleaned of nonorganic materials, as well as grass cuttings, approximately 2 to 3 days after a rainfall event has stopped.

3. Observations of the structure integrity should be made during each visit by base personnel. If it appears that rock has been shifted downstream, an attempt to replace the rock should occur.

4. The cover on the SHA retains rainwater and potentially could be damaged due to the weight. The water on top of the cover should be pumped off and discharged to the surface on Site 8, as necessary.

5. At the completion of each O&M event, all PPE should be removed, containerized, and discarded.

Should you have any questions regarding the ICM activities described in this report, please contact Rick Ryan, Louis Barrentine, or Penny Baxter at (423) 531-1922.

Sincerely,

ABB ENVIRONMENTAL SERVICES, INC.

Ricky A. Ryan, P.E.
Lead Project Engineer

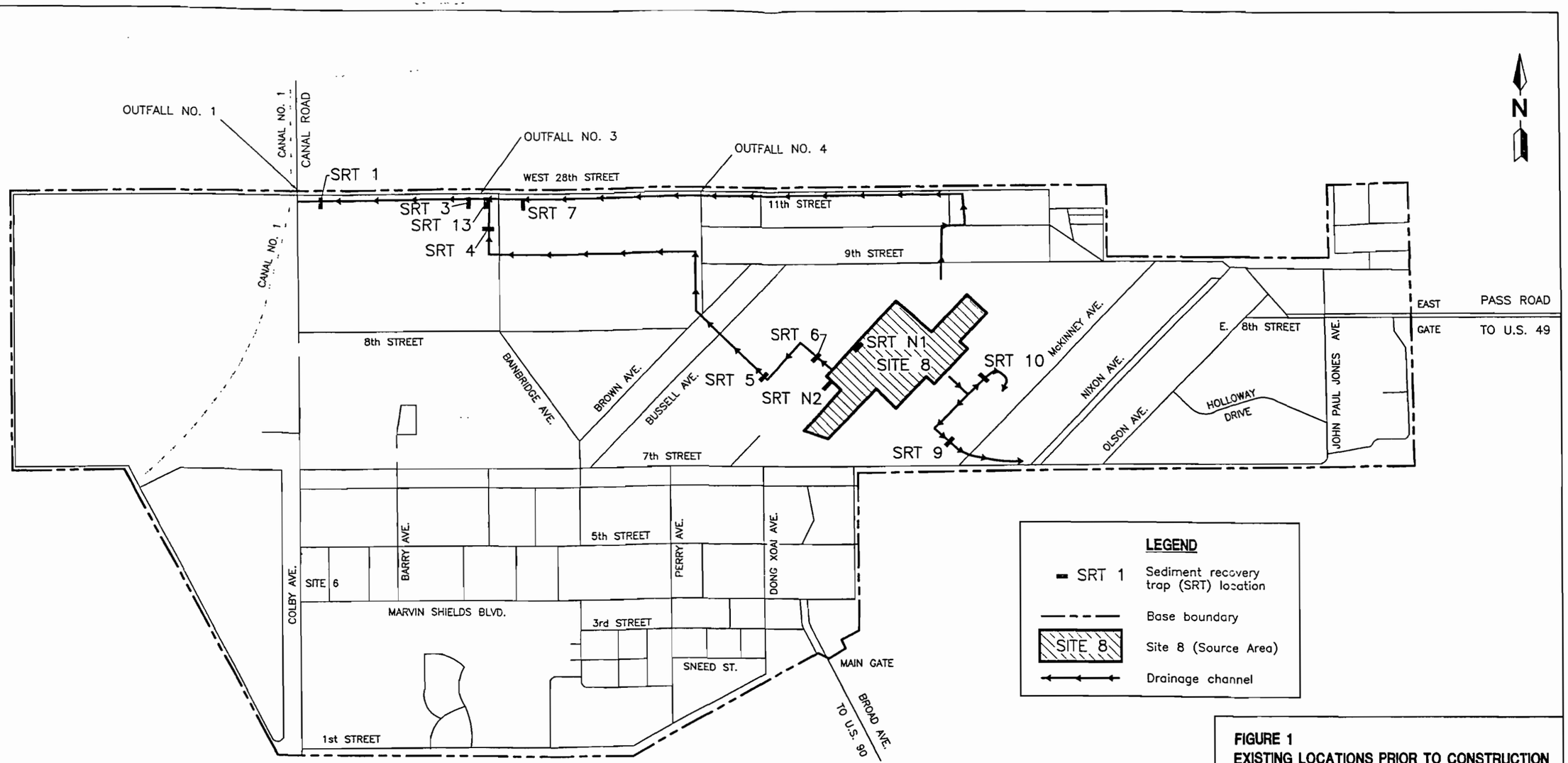
Penny Baxter, P.G.
Project Manager

pc: Gordon Crane, NCBC Gulfport

Attachments

ATTACHMENT A

FIGURES



LEGEND

- SRT 1 — Sediment recovery trap (SRT) location
- Base boundary
- SITE 8 — Site 8 (Source Area)
- Drainage channel

NOTE:

SRT structures 2, 8, 11 and 12 no longer exist and the locations are not shown.

0 500 1000

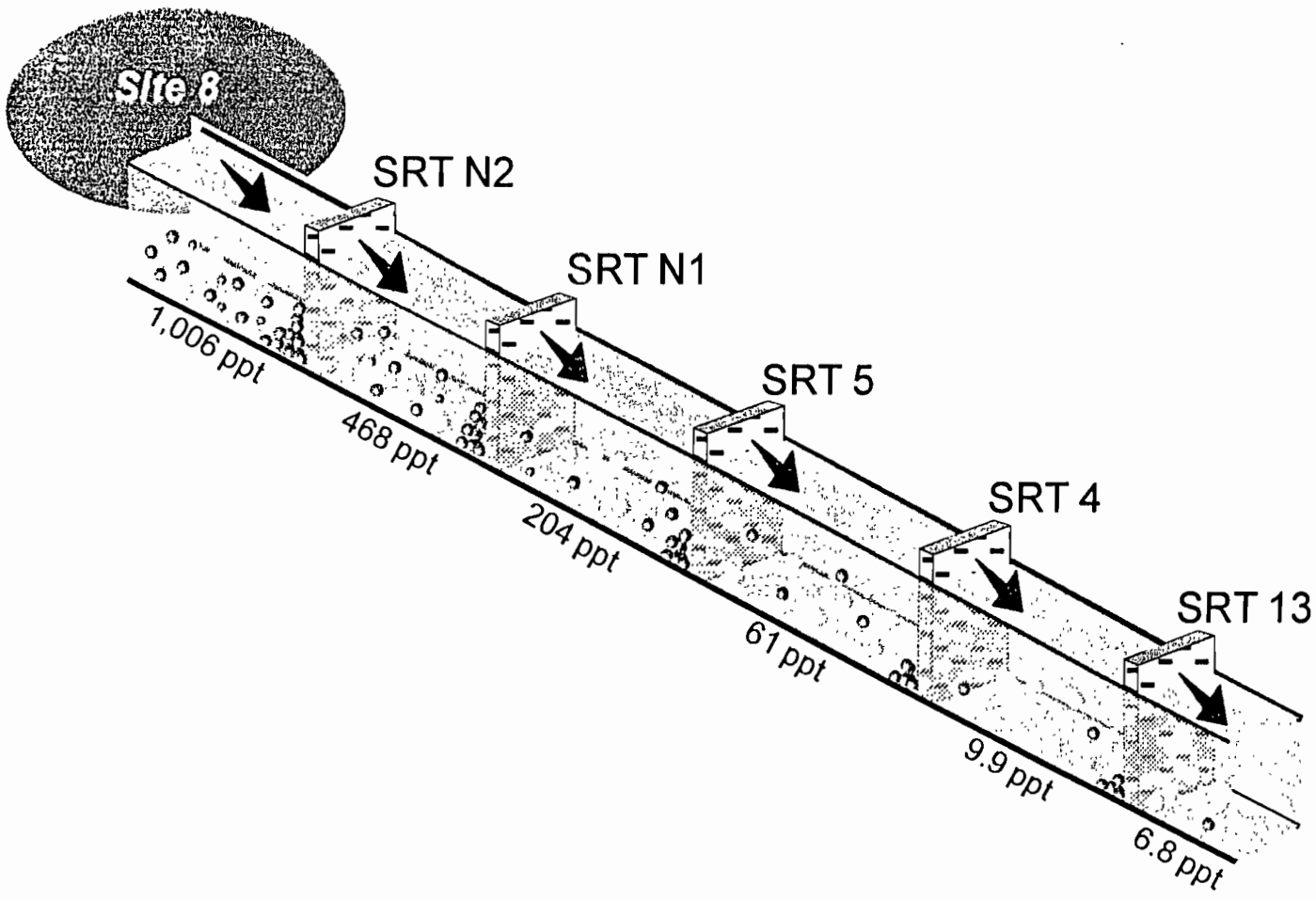
SCALE: 1 INCH = 1000 FEET

FIGURE 1
EXISTING LOCATIONS PRIOR TO CONSTRUCTION ACTIVITIES

ONSITE INTERIM CORRECTIVE MEASURES REPORT

NAVAL CONSTRUCTION BATTALION CENTER GULFPORT, MISSISSIPPI

C:\DWG\ABB\02540.48\ON-SITE\FIG_1\DMF\04-02-98



Not to scale

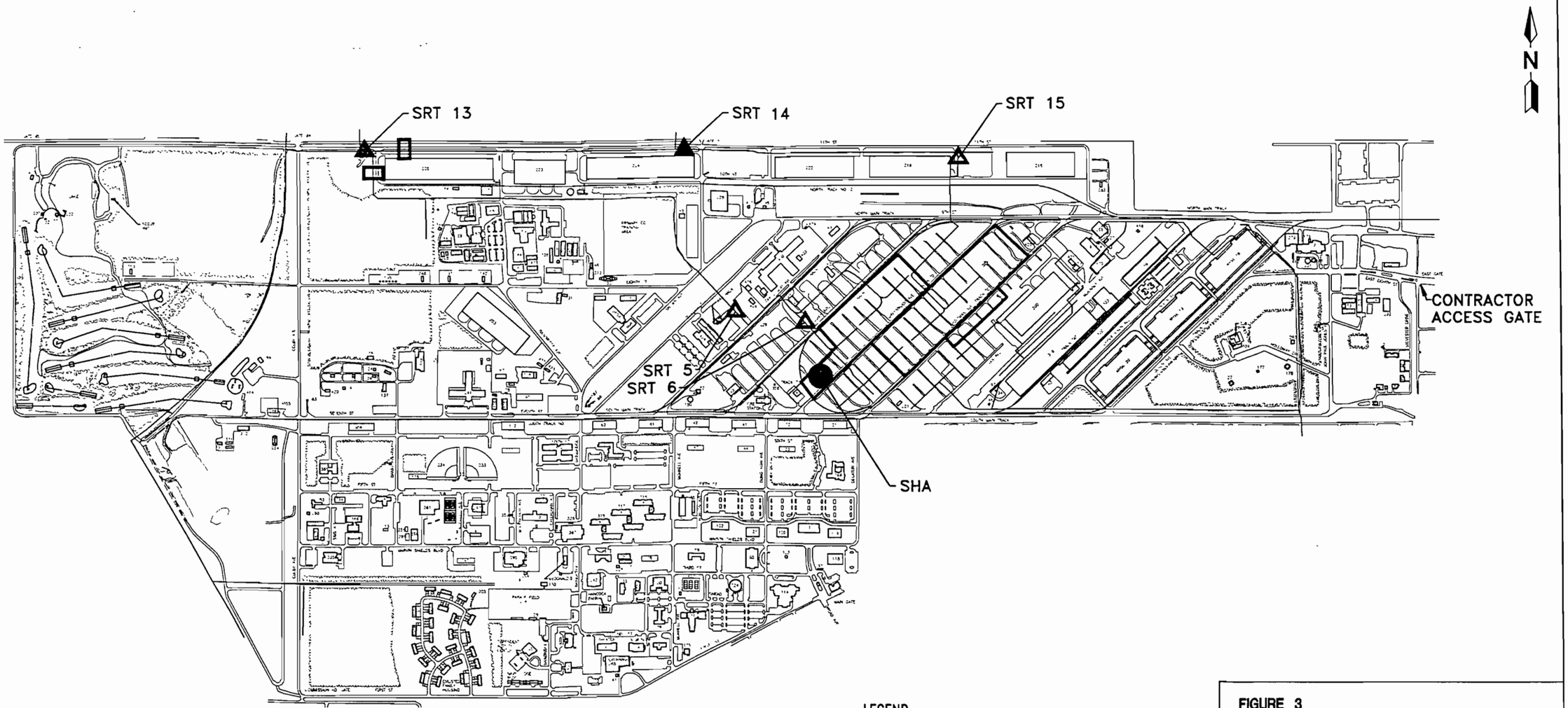
LEGEND
ppt = parts per trillion
204 ppt = dioxin concentrations

FIGURE 2
VISUAL SUMMARY OF DIOXIN RESULTS

ONSITE INTERIM CORRECTIVE MEASURES REPORT

NAVAL CONSTRUCTION BATTALION CENTER GULFPORT, MISSISSIPPI

H:\HEIDI\GULFPORT\FIG2.CDR 010698HAS



LEGEND

- ▲ Sediment recovery trap (SRT)
- ● Sediment handling area (SHA)
- ▭ Removed SRT locations (SRT 4 and 7)
- △ Sediment recovery trap and ditch modifications

0 500 1000
SCALE: 1 INCH = 1000 FEET

C:\DWG\ABB\02540.48\ON-SITE\FIG_3\DMF\04-02-98

FIGURE 3
AREAS OF CONSTRUCTION

ONSITE INTERIM CORRECTIVE MEASURES REPORT

NAVAL CONSTRUCTION BATTALION CENTER GULFPORT, MISSISSIPPI

ATTACHMENT B

TABLE

Table 1
Dioxin Analytical Results for Tetrachlorodibenzo-p-dioxin Toxicity Equivalent

Onsite Interim Corrective Measures Report
Naval Construction Battalion Center
Gulfport, Mississippi

SRT No.	Upgradient Results (ppt)	Downgradient Results (ppt)	Upgradient/Downgradient Ratio
4	61.890	10.920	5.7
5	204.920	52.110	3.9
7	38.860	7.057	5.5
13	9.865	6.885	1.4
N1	468.583	263.110	1.8
N2	1,006.520	623.380	1.6

Notes: SRT = sediment recovery trap.
ppt = parts per trillion.

Table 2
Total Organic Carbon Analytical Results

Onsite Interim Corrective Measures Report
Naval Construction Battalion Center
Gulfport, Mississippi

SRT No.	Upgradient Results (ppm)	Downgradient Results (ppm)	Upgradient/Downgradient Ratio
1	13,000	20,000	0.7
3	5,400	33,000	0.2
4	11,000	11,000	1.0
5	29,000	7,100	4.1
6	43,000	23,000	1.9
7	13,000	3,000	4.3
9	43,000	19,000	2.3
10	11,000	30,000	0.4
13	7,700	2,100	3.7
N1	12,000	8,800	1.4
N2	35,000	32,000	1.1

Notes: Values less than 1.0 shown at SRT locations 1, 3, and 10 indicate an increase in levels. Values greater than 1.0 indicate a decrease in levels.

SRT = sediment recovery trap.
ppm = parts per million.

Table 3
Grain Size Analysis

Onsite Interim Corrective Measures Report
Naval Construction Battalion Center
Gulfport, Mississippi

SRT No.	Upgradient Percent	Downgradient Percent	Percent Difference
Gravel			
1	0.1	5.2	-5.1
3	1.3	0.3	1
4	3.8	3.2	0.6
5	3.7	11.3	-7.6
6	0.1	4.8	-4.7
7	2.1	14.4	-12.3
9	6.5	0.4	6.1
10	11.4	6.6	4.8
13	2.3	15.5	-13.2
N1	5.9	11.7	-5.8
N2	4.2	1.3	2.9
Sand			
1	50.4	16.2	34.2
3	69.7	14.7	55
4	15.7	38.5	-22.8
5	50.6	71.8	-21.2
6	33.2	62	-28.8
7	55.4	70.4	-15
9	45.1	76.2	-31.1
10	50.9	33	17.9
13	46.9	68.3	-21.4
N1	59.1	79.8	-20.7
N2	37.7	68.7	-31
Silt			
1	33.2	53.3	-20.1
3	29	57.7	-28.7
4	55.9	43.1	12.8
5	38.6	16.9	21.7
6	53.4	27.9	25.5
7	32.6	15.2	17.4
9	33.6	23.4	10.2
10	27.6	44.8	-17.2
13	43.8	16.2	27.6
N1	28.1	8.5	19.6
N2	48.8	24.5	24.3

See notes at end of table.

Table 3 (Continued)
Grain Size Analysis

Onsite Interim Corrective Measures Report
Naval Construction Battalion Center
Gulfport, Mississippi

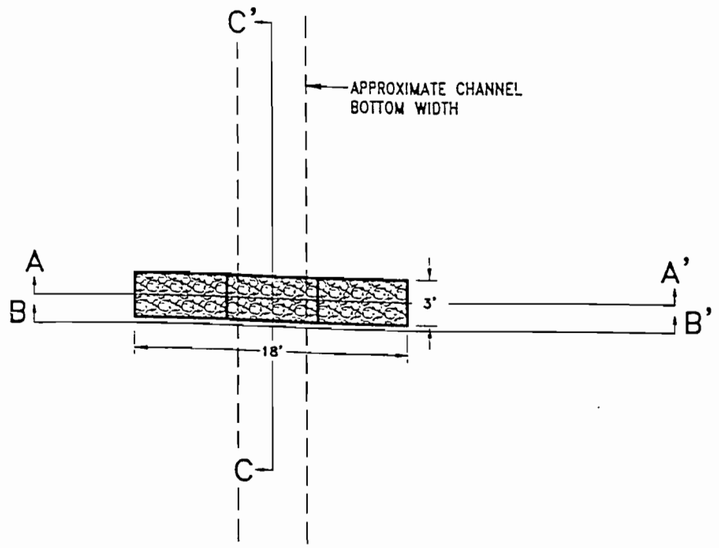
SRT No.	Upgradient Percent	Downgradient Percent	Percent Difference
Clay			
1	16.3	25.3	-9
3		27.3	-27.3
4	24.6	15.2	9.4
5	7.1		7.1
6	13.3	5.3	8
7	9.9		9.9
9	14.8		14.8
10	10.1	15.6	-5.5
13	7		7
N1	6.9		6.9
N2	9.3	5.5	3.8

Notes: Positive values indicate a higher percent of soil material upgradient of the SRT compared to downgradient. This implies that the SRT is successful in stopping the migration of sediments through the drainageways. A negative value indicates a higher percent of soil material downgradient of the SRT as compared to upgradient.

SRT = sediment recovery trap.

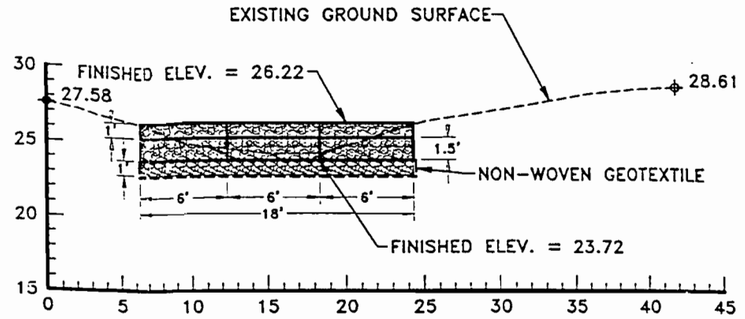
ATTACHMENT C

DESIGN DRAWINGS



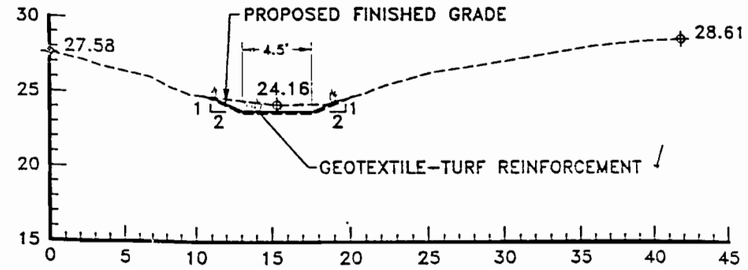
PLAN VIEW (SRT 5)

SCALE: 1" = 10'



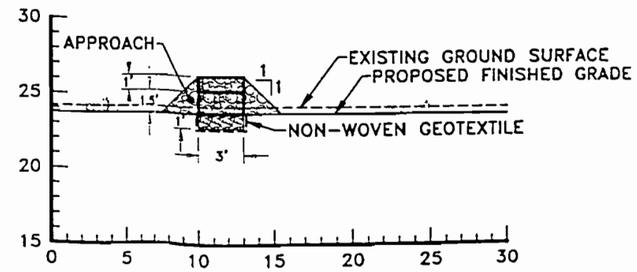
CROSS SECTION A-A' (SRT 5)

SCALE: 1" = 10'



CROSS SECTION B-B' (SRT 5)

SCALE: 1" = 10'



CROSS SECTION C-C' (SRT 5)

SCALE: 1" = 10'

LEGEND

- GABION BASKETS
- FOUNDATION STONE
- GABION STONE ON APPROACHES

NOTE:

DITCH MODIFICATION ACTIVITIES WILL OCCUR ALONG THE DITCH APPROXIMATELY 100' UPGRADIENT AND APPROXIMATELY 75' DOWNGRADIENT OF THE SRT LOCATION. THESE DITCH MODIFICATIONS ARE TYPICAL IN SHAPE OF SECTION B-B' BUT VARY IN DIMENSIONS ALONG THE DITCH AT THE ENGINEERS DISCRETION. GENERAL NOTES CONTAIN CONSERVATIVE EXCAVATED MATERIAL QUANTITIES TO BE USED IN BID ESTIMATES.

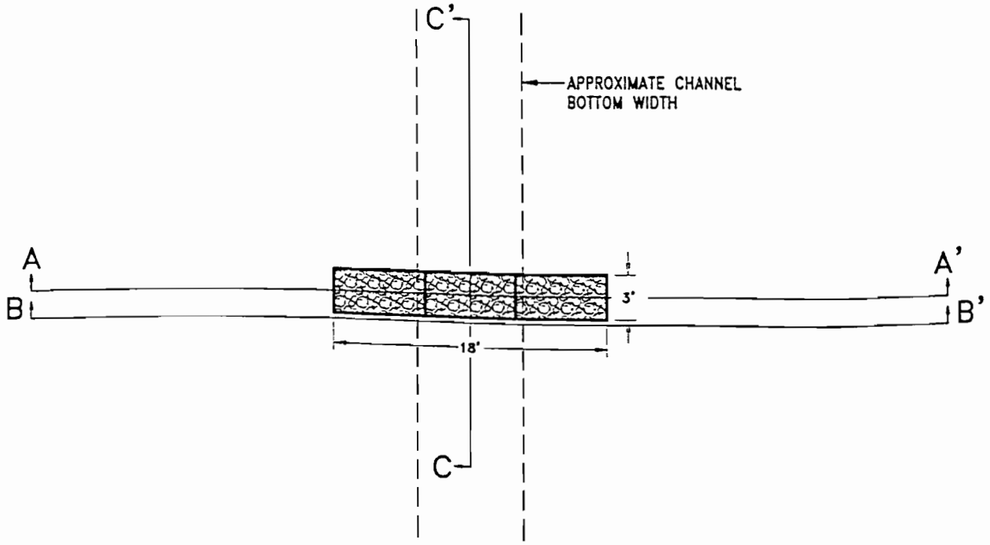
RICKY A. RYAN
REGISTERED PROFESSIONAL ENGINEER
12503
STATE OF MISSISSIPPI

DRAWING 3
SRT 5 DETAILS

INTERIM CORRECTIVE MEASURES DESIGN

NAVAL CONSTRUCTION BATTALION CENTER
GULFPORT, MISSISSIPPI

D:\DWG\ABB\08535-46\DESIGN\DRAWINGS\SRT 5 DET\DMF\08-29-97



PLAN VIEW (SRT 6)

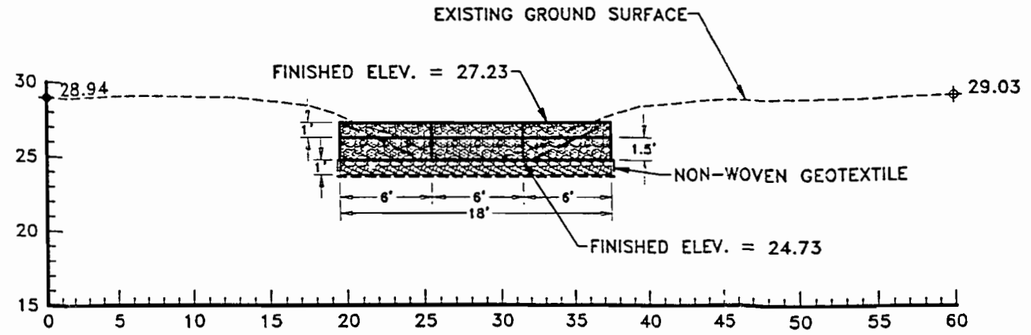
SCALE: 1" = 10'

LEGEND

- GABION BASKETS
- FOUNDATION STONE
- GABION STONE ON APPROACHES

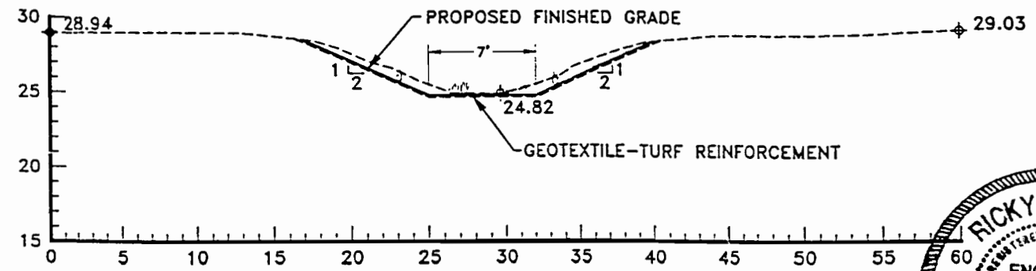
NOTE:

DITCH MODIFICATION ACTIVITIES WILL OCCUR ALONG THE DITCH APPROXIMATELY 125' UPGRADIENT AND APPROXIMATELY 25' DOWNGRADIENT OF THE SRT LOCATION. THE DITCH MODIFICATIONS ARE TYPICAL IN SHAPE OF SECTION B-B' BUT MAY VARY IN DIMENSIONS ALONG THE DITCH AT THE ENGINEERS DISCRETION. GENERAL NOTES CONTAIN CONSERVATIVE EXCAVATED MATERIAL QUANTITIES TO BE USED IN BID ESTIMATES.



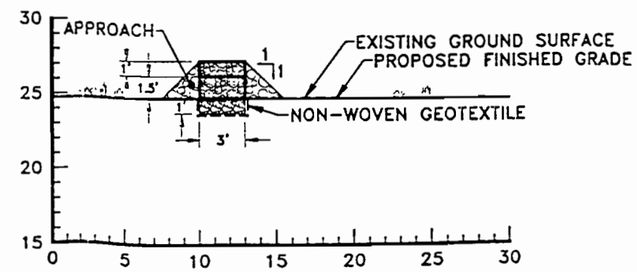
CROSS SECTION A-A' (SRT 6)

SCALE: 1" = 10'



CROSS SECTION B-B' (SRT 6)

SCALE: 1" = 10'



CROSS SECTION C-C' (SRT 6)

SCALE: 1" = 10'

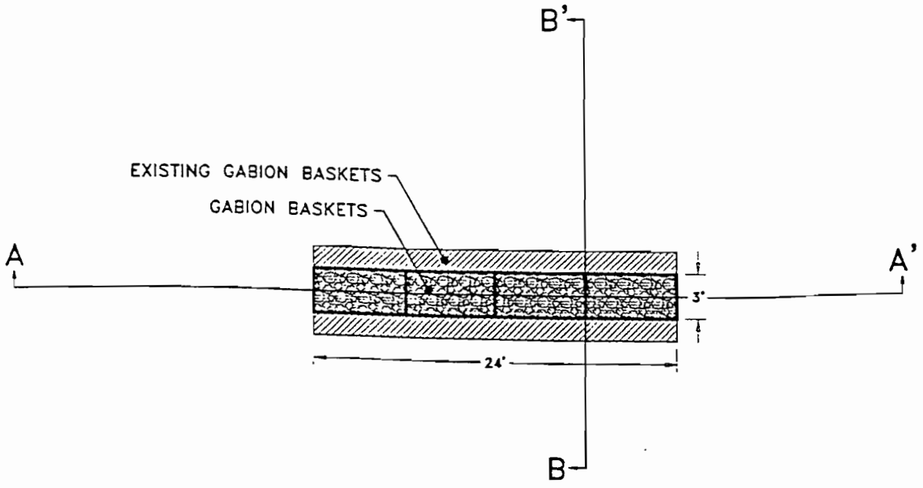
RICKY A. RYAN
REGISTERED PROFESSIONAL ENGINEER
12503
STATE OF MISSISSIPPI

DRAWING 4
SRT 6 DETAILS

INTERIM CORRECTIVE MEASURES DESIGN

NAVAL CONSTRUCTION BATTALION CENTER
GULFPORT, MISSISSIPPI

C:\DWG\ABB\08535-46\DESIGN\DRAWINGS\SRT 6 DET\DMF\08-29-97

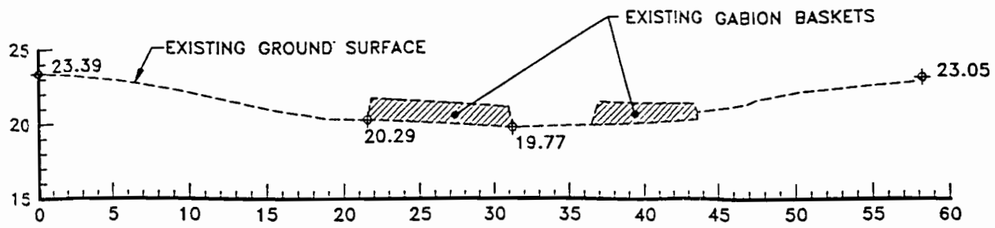


PLAN VIEW (SRT 13)

SCALE: 1" = 10'

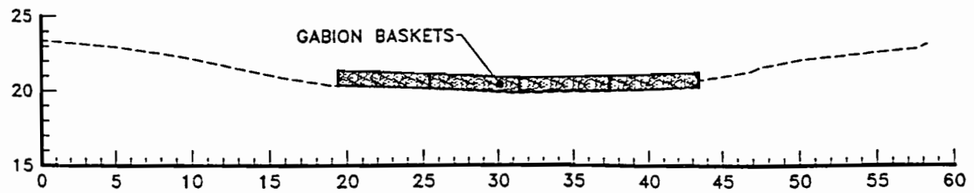
LEGEND

- GABION BASKETS
- FOUNDATION STONE
- GABION STONE ON APPROACHES



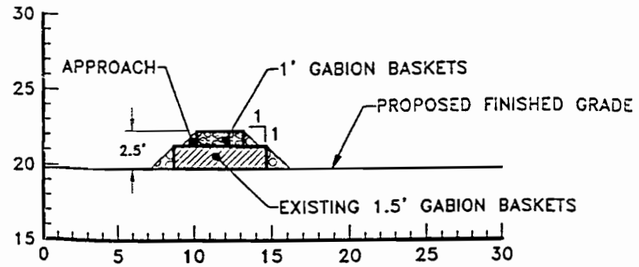
CROSS SECTION A-A' – EXISTING CONDITIONS (SRT 13)

SCALE: 1" = 10'



CROSS SECTION A-A' – REBUILD SECTION (SRT 13)

SCALE: 1" = 10'



CROSS SECTION B-B' (SRT 13)

SCALE: 1" = 10'

NOTES:

1. THE EXISTING 1.5-FOOT HIGH GABION BASKET SHALL BE REMOVED AND REPLACED WITH 1-FOOT HIGH BASKETS. (SECTION A-A').
2. GABION STONE REMOVED FROM EXISTING BASKETS MAY BE REUSED AT THE ENGINEERS DISCRETION.

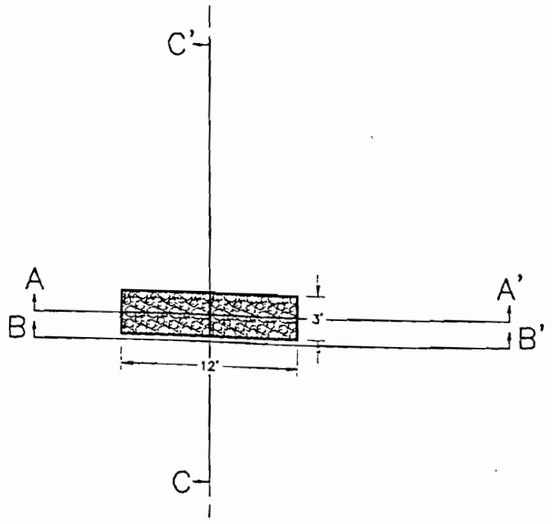
RICKY A. RYAN
REGISTERED PROFESSIONAL ENGINEER
12503
STATE OF MISSISSIPPI

DRAWING 5
SRT 13 DETAILS

INTERIM CORRECTIVE MEASURES DESIGN

NAVAL CONSTRUCTION BATTALION CENTER
GULFPORT, MISSISSIPPI

O:\DWG\ABB\08535-46\DESIGN\DRAWINGS\SRT 13 DET\DWF\08-29-97



PLAN VIEW (SRT 14)

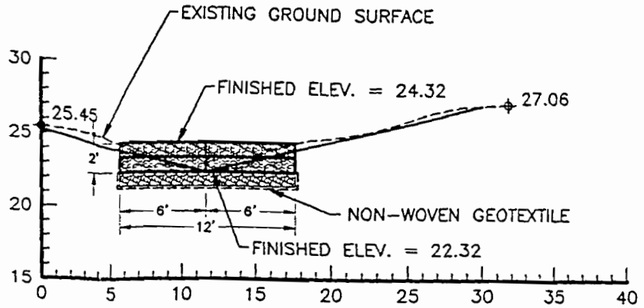
SCALE: 1" = 10'

LEGEND

- GABION BASKETS
- FOUNDATION STONE
- GABION STONE ON APPROACHES

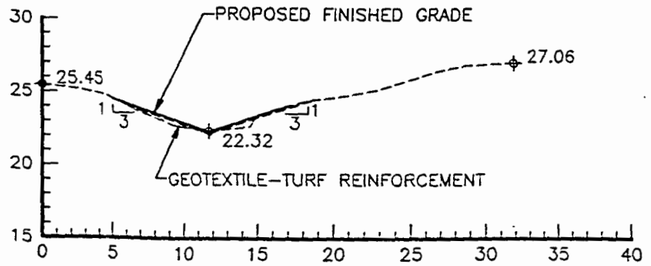
NOTE:

DITCH MODIFICATION ACTIVITIES ARE NOT ANTICIPATED AT THIS LOCATION.



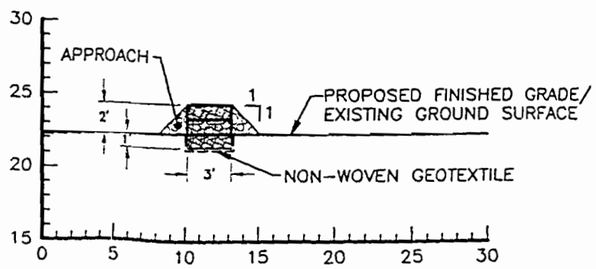
CROSS SECTION A-A' (SRT 14)

SCALE: 1" = 10'



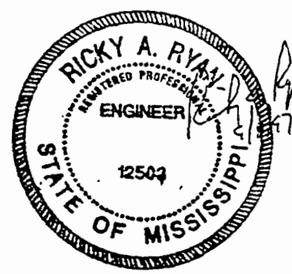
CROSS SECTION B-B' (SRT 14)

SCALE: 1" = 10'



CROSS SECTION C-C' (SRT 14)

SCALE: 1" = 10'

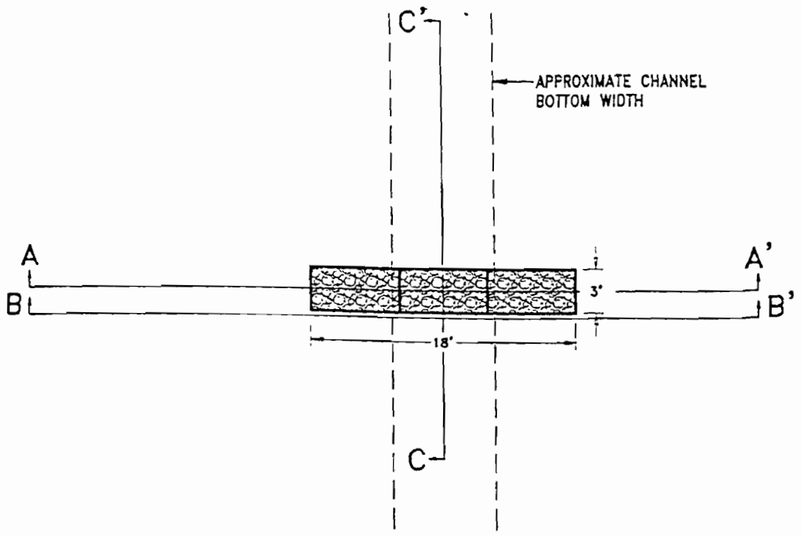


DRAWING 6
SRT 14 DETAILS

INTERIM CORRECTIVE MEASURES DESIGN

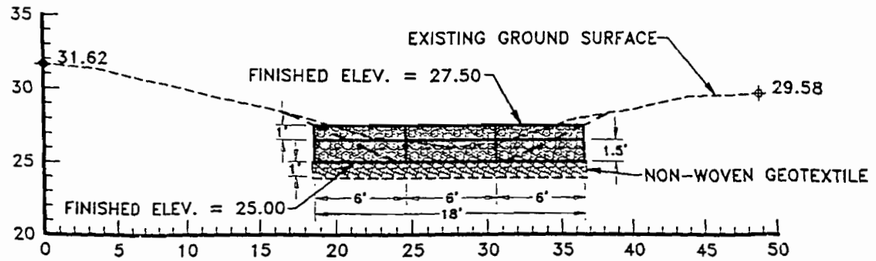
NAVAL CONSTRUCTION BATTALION CENTER
GULFPORT, MISSISSIPPI

D:\CWG\ABB\08535-46\DESIGN\DRAWINGS\SRT 14 DET\DWF\08-29-97



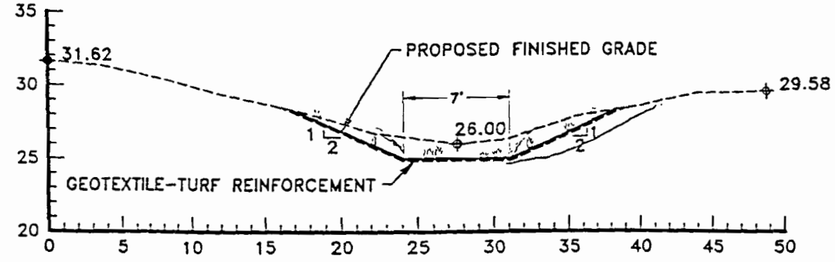
PLAN VIEW (SRT 15)

SCALE: 1" = 10'



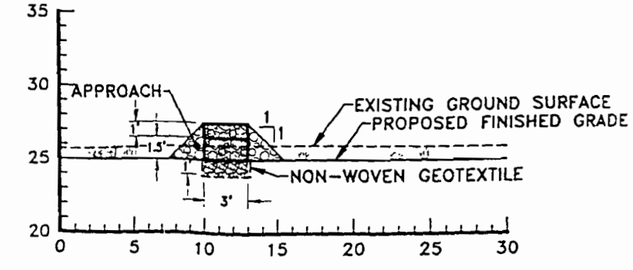
CROSS SECTION A-A' (SRT 15)

SCALE: 1" = 10'



CROSS SECTION B-B' (SRT 15)

SCALE: 1" = 10'



CROSS SECTION C-C' (SRT 15)

SCALE: 1" = 10'

LEGEND

- GABION BASKETS
- FOUNDATION STONE
- GABION STONE ON APPROACHES

NOTE:

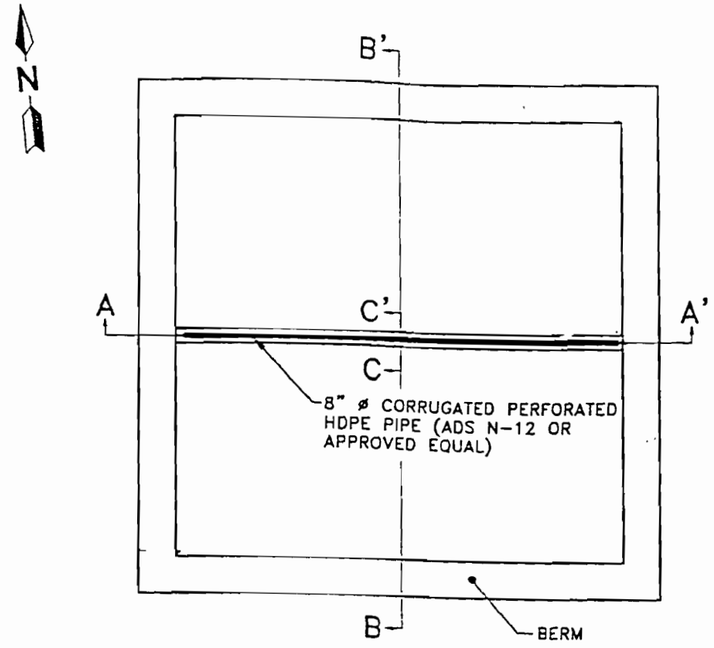
DITCH MODIFICATION ACTIVITIES WILL OCCUR ALONG THE DITCH APPROXIMATELY 170' UPGRADIENT AND APPROXIMATELY 25' DOWNGRADIENT OF THE SRT LOCATION. THE DITCH MODIFICATIONS ARE TYPICAL IN SHAPE OF SECTION B-B' BUT VARY IN DIMENSIONS ALONG THE DITCH AT THE ENGINEERS DISCRETION. GENERAL NOTES CONTAIN CONSERVATIVE EXCAVATED MATERIAL QUANTITIES TO BE USED IN BID ESTIMATES.

DRAWING 7
SRT 15 DETAILS

INTERIM CORRECTIVE MEASURES DESIGN

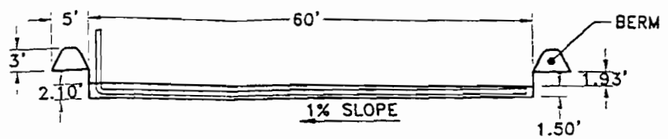
NAVAL CONSTRUCTION BATTALION CENTER
GULFPORT, MISSISSIPPI

D:\DWG\ABB\08535-46\DESIGN\DRAWINGS\SRT 15 DET\DWF\08-29-97



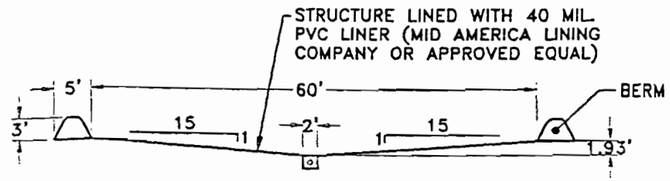
PLAN VIEW

SCALE: 1" = 20'



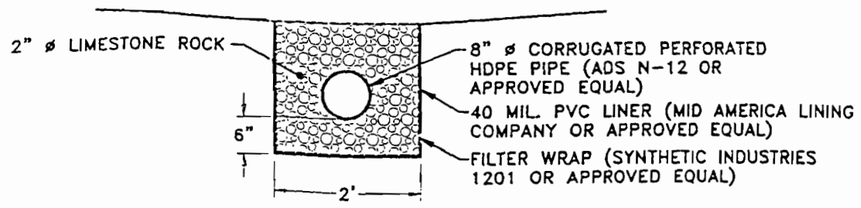
CROSS SECTION A-A'

SCALE: 1" = 20'



CROSS SECTION B-B'

SCALE: 1" = 20'



CROSS SECTION C-C'

SCALE: 1" = 2'

NOTE:

1. PVC LINER WILL BE DRAPED OVER TOP OF BERM AND EMBEDDED INTO THE BERM.
2. EXCESS SPOIL MATERIAL FROM CONSTRUCTION OF SOILS HANDLING AREA CAN BE SPREAD ON SITE AT THE DISCRETION OF THE ENGINEER.
3. A COVER SHEET FOR THE SOILS HANDLING AREA OF 20 MIL PVC (MID AMERICA LINING COMPANY OR APPROVED EQUAL) WILL BE PROVIDED AND WILL BE 90' BY 90' IN SIZE.

C:\DWG\ABB\08535-46\DESIGN\DRAWINGS\SOILAREA\DWF\08-29-97

DRAWING 8
SOILS HANDLING AREA

INTERIM CORRECTIVE MEASURES DESIGN

NAVAL CONSTRUCTION BATTALION CENTER
GULFPORT, MISSISSIPPI

ATTACHMENT D

GLOSSARY

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
HO	herbicide orange
ICM	Interim Corrective Measures
MSDEQ	Mississippi Department of Environmental Quality
NCBC	Naval Construction Battalion Center
O&M	operation and maintenance
PPE	personal protection equipment
PVC	polyvinyl chloride
SHA	soil handling area
SRT	sediment recovery trap
TE	toxicity equivalent
TOC	total organic carbon

ATTACHMENT E

REFERENCE

REFERENCE

ABB Environmental Services, Inc. (ABB-ES). 1996. *Interim Corrective Measures Workplan*. Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (August).

Code of Federal Regulations. 1993. *Title 29--Labor: Part 1910.120, Hazardous Waste Operations and Emergency Response*. Published by the Office of the Federal Register National Archives and Record (revised July).